



Heriot-Watt University
Research Gateway

Exploring 'successful' outcomes of entrepreneurship education

Citation for published version:

Galloway, L, Kapasi, I & Whittam, G 2015, 'Exploring 'successful' outcomes of entrepreneurship education: A follow-up study ', *Industry and Higher Education*, vol. 29, no. 6, pp. 505-515.
<https://doi.org/10.5367/ihe.2015.0281>

Digital Object Identifier (DOI):

[10.5367/ihe.2015.0281](https://doi.org/10.5367/ihe.2015.0281)

Link:

[Link to publication record in Heriot-Watt Research Portal](#)

Document Version:

Publisher's PDF, also known as Version of record

Published In:

Industry and Higher Education

Publisher Rights Statement:

© IP Publishing Ltd. Published in Industry and Higher Education Vol. 29 No. 6 December 2015.

General rights

Copyright for the publications made accessible via Heriot-Watt Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

Heriot-Watt University has made every reasonable effort to ensure that the content in Heriot-Watt Research Portal complies with UK legislation. If you believe that the public display of this file breaches copyright please contact open.access@hw.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Exploring ‘successful’ outcomes of entrepreneurship education

A follow-up study

Laura Galloway, Isla Kapasi and Geoff Whittam

Abstract: *During 2005–2006 entrepreneurship students in several UK universities completed a survey about their background and career intentions. This paper reports, eight years on, on a follow-up study with ten of these participants, with the aim of exploring the students’ intentions and subsequent actions since graduating. Using a qualitative methodology, the authors examined whether those who were measured as likely to be entrepreneurial are entrepreneurs; and whether the participants consider that their entrepreneurship education experience was valuable. The study finds that career experiences and outcomes are highly idiosyncratic and do not seem to correspond closely to original intentions, regardless of original ambitions. The authors suggest that career destinations are complex in a dynamic graduate employment context, and that entrepreneurship education has a contribution to make for graduates, irrespective of whether or not they become entrepreneurs. The paper identifies a weakness in entrepreneurship education research in its over-reliance on agency-based approaches and its assumption that outcomes are measured in the binary terms of ‘entrepreneur’ or ‘not entrepreneur’. The authors recommend methodological development in the field to capture more appropriately the rich and nuanced relationship between entrepreneurship education and graduate careers. This should lead to a more robust understanding on which to base information for delivery and practice.*

Keywords: *business creation; contract employment; entrepreneurship education; graduate careers; self-employment*

Laura Galloway (corresponding author) is Professor of Business and Enterprise in the School of Management and Languages, Heriot-Watt University, Edinburgh EH14 4AS, UK. E-mail: l.galloway@hw.ac.uk. Isla Kapasi is a PhD student in the School of Management and Languages at Heriot-Watt University. Geoff Whittam is Reader in Entrepreneurship at Glasgow Caledonian University, Glasgow, UK.

Exploring 'successful' outcomes of entrepreneurship education

Despite calls for development of understanding of the 'interface between entrepreneurship and education' (Bechard and Gregoire, 2005, p 37), few studies scrutinize the impact of entrepreneurship education on actual employment or self-employment. The purpose of this paper is to address this gap by exploring the real-life experiences of graduates who received entrepreneurship education at university. Most previous studies limit outcome measures of entrepreneurship education to the binary categories of business creation or self-employment, or not, and provide little in the way of information about nuance or detail within these. Thus, as Green and Saridakis (2008) contend, we still know very little about the actual careers of those who studied entrepreneurship at university.

We report on a qualitative, case-based follow-up of research conducted eight years ago (that is, in 2005–2006). Using a survey, the original research investigated the entrepreneurial (or otherwise) ambitions of students in the UK; the follow-up research compares ambitions and intentions as reported in the original study with actual outcomes for a small subsample of these same students (now graduates). The paper thus sets out to contribute to our understanding of the effectiveness or otherwise of entrepreneurship education as experienced in the post-university lives of those who received it. The paper also reports on an exploratory analysis of the perceived utility of entrepreneurship education to those who have become entrepreneurs (defined as having started a business or become self-employed) and to those who have not.

The paper starts with a review of the literature about entrepreneurship education in universities and research, focusing on its outcomes. After identifying research questions that emerge, details of the empirical study follow – these include a description of the methodology employed and its rationale. The results and analysis are then reported and the paper concludes with the implications for those engaged in the development and provision of entrepreneurship education, and for further research.

Entrepreneurship education in universities

There has been much reflection on, and development of, pedagogies used in entrepreneurship education to develop skills associated with entrepreneurship (Honig, 2004; Rideout and Gray, 2013). The literature abounds with case studies and profiling papers which explain, assess the impact of, and often celebrate individual entrepreneurship education initiatives (for example, Rosa, 2003; Johnson *et al*, 2006). Reviews such as those by Gorman *et al* (1997) and Pittaway and Cope (2007) provide summaries of the developments in

entrepreneurship education research and practice over the last two decades. Pittaway and Cope (*ibid*) also identified that the developments in entrepreneurship education research and practice have often been based on assumptions that have largely gone unchallenged. Together with Fayolle (2013) and Neck and Greene (2011) they identify a need for greater critical engagement with some of the assumptions in the entrepreneurship field. Notably, there is much assertion in academia and amongst national and regional governments that entrepreneurship education at university has the potential to generate good economic outcomes (Honig, 2004; Oosterbeek *et al*, 2010). Such assertions are based on the idea that those with higher education possess the skills and attributes – vocational and professional – to create innovative, high value companies (Rae *et al*, 2010). New firm creation, especially in knowledge sectors populated by graduates, is commonly lauded for its potential bolstering effect on industries. The innovation and opportunity exploitation associated with entrepreneurship and business venturing is shown to contribute to sectoral dynamism, economic progress and international competitiveness (Avnimelech and Feldman, 2010; Mohannak, 2007). In turn, entrepreneurship education is usually rationalized as 'good for students' in that it prepares them for an economy that is based on opportunity realization and an increasing small firms sector.

Correspondingly, programmes that include entrepreneurship education most often do so to encourage the search for, and exploitation of, opportunities to create firms and develop lucrative niches (Kirby, 2004; Neck and Greene, 2011). These opportunities form the basis of potential business-ownership careers for individuals, and through these careers, economic contribution is inferred and expected.

Despite the common rhetoric, however, it is also well documented elsewhere in the wider entrepreneurship literature that innovation and sectoral development are fostered by exploitation of opportunities in large firms in most industries (for example, Cooper, 1985). In fact, entrepreneurship at its opportunity-exploiting, innovative best is not concentrated in the start-up sector at all; it is also found in the large firms and institutional sectors, where there is appropriate resource, knowledge and R&D capability (Avnimelech and Feldman, 2010). Beyond the context of either small firm start-ups or self-employment, little is made of the potential contribution of entrepreneurship education. While there is much contention that the skills and abilities developed by entrepreneurship education are important for large organizations (Galloway *et al*, 2005; Rae, 2007; Sewell and Dacre Pool, 2010), links between entrepreneurship

education and non-start-up contexts, including in existing firms, are little explored.

In fact, in general throughout entrepreneurship education studies, 'success' is defined exclusively in terms of the ambition for or realization of self-employment and business ownership, after graduation (Rideout and Gray, 2013). Not only does this diminish considerations of the value of entrepreneurship education to those entering existing organizations; the idea that graduate start-ups and self-employment are 'successful' outcomes is itself potentially misleading. Von Graevenitz *et al* (2010) identified that one of the contributions entrepreneurship education might make to an individual is to show them that they are not suited to a career in autonomous business venturing. The knowledge acquisition in this case may save time, energy and have a net positive effect on a career, as entrepreneurship is experienced vicariously and ruled out. For the individual at least, this must be considered a successful outcome.

In addition, the modern economic landscape includes industries that are characterized by contractual work. For many graduates this has the potential to require self-employment without them having had any ambition for it. According to employment scholars such as Baldry *et al* (2007) and Marks and Huzzard (2010), the amount of this type of contractual work, compelling graduates to self-employed status, is increasing. Several industries, including opportunity-rich graduate sectors such as energy and IT, are increasingly based on sub-contracted self-employment rather than traditional employment (see, for example, Bergvall-Kareborn and Howcroft, 2011). One of the reasons for this is that it is more cost effective for large firms to subcontract work (Baldry *et al*, 2007). Pertinent for the current paper, graduates and other professionals are increasingly finding themselves in an employment environment that *requires* them to be self-employed (Robert *et al*, 2009). However, it is an outcome not addressed in the entrepreneurship literature, nor indeed the entrepreneurship education literature. In fact, this type of self-employment would be measured in most studies as a 'success' of entrepreneurship education, despite it not necessarily having been part of an individual's career ambition.

Assuming that at least some students will select entrepreneurship education, on the basis that they are interested in starting a firm or working for themselves, we can ask them the extent to which their entrepreneurship education experience has helped. However, 'success' is in any case a relative term and, as noted, start-up may not in fact be related to the ambitions of students. For those who find themselves self-employed in contract work as a result of industry structure or economic conditions rather than personal

ambition, there may well yet be a role inferred for entrepreneurship education; perhaps a very important one. Furthermore, for those who do not want to start firms we cannot assume entrepreneurship education has no contribution to make, either to them or to the organizations in which they will eventually work. These types of 'entrepreneurial' eventualities have not been explored in the extant literature dealing with entrepreneurship education. Rather, entrepreneurship education studies have tended to sample students with a view to predicting entrepreneurship as a 'successful' outcome, with such entrepreneurship being defined as, and assumed to be, opportunity-based, actively chosen.

In addition research has sought to understand business venturing and entrepreneurship from a theoretical perspective, by understanding the motivations for them. To underpin these studies, theories of intention have been used to explore motivations and antecedents of intention to start firms; this has been based on the assumption that entrepreneurship is an intentional agency-based activity (Arenius and Kovalainen, 2006; Littunen, 2000; Patzelt and Shepherd, 2011). However, there is – as noted – increasing evidence that self-employment and business ownership can be disparate from any positive agency-based choice. According to Wiklund *et al* (2003) the most commonly used theoretical framework for understanding motivations in empirical entrepreneurship education studies is the Theory of Planned Behaviour (TPB), and the current study is no exception. It is to theoretical perspectives on studying entrepreneurship education and its outcomes that we now turn.

Theoretical considerations

Theory of Planned Behaviour

The Theory of Planned Behaviour (Ajzen, 1991) originated in the field of social psychology. The theory seeks to explain behaviour through a simple framework, based on three antecedents:

- *Attitudes* (ATT), which describes favourable or unfavourable personal evaluations of a behaviour;
- *Social Norms* (SN), which describes an individual's perceived social pressure to engage in a particular behaviour; and
- *Perceived Behavioural Control* (PBC), which describes the degree of control that an individual believes they have over achieving the behaviour.

Previous research has validated each of the antecedents as contributing to entrepreneurial outcomes (Kautonen *et al*, 2011). Measurement of the antecedents of

Exploring 'successful' outcomes of entrepreneurship education

intention should therefore correspond to actual intention; and, in turn, where they do correspond, intention should predict business creation as an outcome. This is the underpinning thesis in studies such as those by Krueger (2005) and Kolvereid and Isaksen (2006).

The environment

According to TPB, someone may start a firm because they are predisposed to this activity. As already noted, however, not all individuals start firms or become self-employed as a consequence of their intentions or ambitions but, rather, as a reaction to – for instance – industry norms, lack of reasonable valuable employment opportunities, changes in industrial structure, changes to service delivery through for example contracting out by the local state, or even personal circumstances. Thus while debate about the applicability of locus of control to entrepreneurship continues (Chell *et al*, 1991) it is increasingly clear that entrepreneurship as an outcome is not always the result of any control on the part of the individual at all. Further, Fayolle and Liñán (2014) identified that environmental variables may have a particular effect on the intention–action link. Despite these considerations, a TPB-informed entrepreneurship education impact assessment study would measure all types of self-employment as a positive result.

This is not the only weakness in studies underpinned by TPB. In addition to a lack of contextual considerations, the model is often tested using a binary outcome; that is, either the student becomes self-employed/a business owner, or they do not. This binary approach limits understanding of alternative outcomes. In addition, entrepreneurship education studies are in many cases limited to tests of intention formation, which again assumes the dominance of agency-led future outcomes (Krueger *et al*, 2000; Lee *et al*, 2011). Throughout the literature, where the TPB is found to be valid, what has occurred is a test of the coherence of the model, rather than its reflection of subsequent business creation activities (Kautonen *et al*, 2011). Furthermore, some studies have sought to adapt TPB in order to give it greater relevance to entrepreneurship; for example, on the importance of culture (Linan *et al*, 2013), opportunity (Hui-Chen *et al*, 2014), and attitudes to risk (Segal *et al*, 2005). In each case, agency remains the key focus, however.

Research questions

The primary objective of the current study was to compare expectations of students reported in TPB-informed research with actual outcomes. This was investigated in an exploratory study of the careers of a

small subsample of the original student dataset eight years later, when they had become graduates. Three research questions were thus posed.

- (1) Did the original study predict outcomes accurately for participants?
- (2) Did entrepreneurship education contribute to business creation or self-employment for participants?
- (3) Did entrepreneurship education contribute to careers and employment beyond business creation or self-employed contexts?

The means by which this research was conducted is described in the next section.

Methodology

Original study

During the academic year 2005–2006, students in four UK universities who participated in an entrepreneurship module as part of their degree were asked to complete a questionnaire. The modules included in the survey were all applied business venturing, where students participated, in teams of four or five, in the simulation of a business start-up. A sample of participants ($n=600$) completed the original questionnaire. Informed by TPB, the questionnaire asked students about their intentions towards entrepreneurship: Table 1 presents the items measured, the measurement applied and the link with TPB.

As Table 1 shows, students in the original study could be assigned a score in terms of their likelihood to become an entrepreneur. Those least likely to start a firm or become self-employed would score 0, while those most likely would score 4. This is a somewhat arbitrary instrument and it does not explore the effect of different antecedents relative to each other, because this has been done elsewhere (see, for example, Kreuger *et al*, 2000; Kautonen *et al*, 2011). However, it is validated in Galloway and Kelly (2009), where it did predict likelihood to become an entrepreneur.

Follow-up study

In the original study, personal e-mail addresses and telephone numbers were gathered and used as the means by which participants were to be contacted for the follow-up. In addition, social network sites such as Facebook and LinkedIn were used to 'find' those from the original study. Ultimately, several graduates were located and from them ten agreed to participate in the follow-up. The small number of research subjects allowed for a greater degree of depth in the case profiling of each. Case study methodology, as

Table 1. Background measurements taken in original study using TBP.

Item	Question	Possible answers	Score	Antecedent
Intention	Do you plan to become self-employed or own a business? If so, when?	Immediately/in 5 years; 5–10 years; more than 10 years; never.	1 ^a 0 0 0	Intention.
Activity	Have you done anything so far to start a firm or make money independently?	Yes; no.	1 0	Perceived; behavioural; control.
Role models	Do you have family or friends in business?	Parent, spouse, sibling, other (such as a friend).	1 0	Social norms.
Desire	Do you want to be your own boss?	Yes; no.	1 0	Attitude: perceived; behavioural; control.

Note: ^aIn the study only 'immediate' intent to start a firm was given a score. This was to identify those most likely to foster ambitions for business venturing in the short term, because it is contended (see, for example, van Gelderen *et al.*, 2005; Timmons and Spinelli, 2007) that urgency of intent is a predictor of a career in entrepreneurship.

advocated, for example, by Yin (2003) and Rubin and Rubin (2005), was considered most appropriate for this study because the aim was to explore students' career experiences. This would include information that could not be quantified, or where being quantified would not provide any meaningful insight (Cassell and Symon, 1994). While it is not possible to generalize results, Stake (1995, p 40) claimed that through qualitative research such as this we gain vicarious 'experiential understanding'. The case studies were developed and triangulated using the following measures for each participant.

- (1) Original questionnaire data from 2005–2006 (including their 'likelihood to become an entrepreneur' using the scoring system as explained in Table 1).
- (2) An initial telephone conversation with the students' former entrepreneurship teacher, as a 'catch-up, what are you doing now' source of information.
- (3) A semi-structured interview with a researcher (not the teacher) in which various themes were explored.¹

Further triangulation was possible for some by viewing CVs and other career-related information on LinkedIn.

As advocated by Yin (2003), follow-up interviews were informal and semi-structured in order to elicit as much information as possible. Informed by the extant literature and the aims of the study, participants were asked about their experiences to date in their career, their ambitions for the future, and the extent to which they considered entrepreneurship education had either

had an effect or been useful (or not). According to appropriate practice in interview-based research, all conversations were recorded and transcribed verbatim. The purpose of the interviews was to allow participants to relate their experiences in their own words. It is from the facilitation of testimony and individuals 'stories' that a depth of appreciation of the influences and experiences of human life may emerge (Rubin and Rubin, 2005; Salkind, 2009), and it was the depth and nuance inherent in experiences that this study sought to capture. This study thus subscribes to the idea that human activities, including business and employment, are best understood by exploring the experiences of those who are living them. This is not new in entrepreneurship research (see, for example, Díaz-García and Welter, 2013; Hamilton, 2006), but is – so far – relatively rare.

For the purposes of eliciting sensitive information and opinion, it was agreed with participants that all cases would be anonymized. Initial analysis involved comparing scores and background data from the original study with information uncovered in the follow-up. In accordance with Miles and Huberman (1994), analysis of the interviews was guided both by themes informed by the extant literature and by themes that emerged during the fieldwork. Transcribed narratives were explored in some detail. As recommended by Stake (1995), themes were identified by each researcher individually in the first instance and consensus was achieved by collaboration thereafter. Table 2 provides details obtained throughout the research process of each

Exploring 'successful' outcomes of entrepreneurship education

Table 2. The participants.

Informant	Score in original study (0–4)	Entrepreneur (business owner/self-employed) or otherwise	Number of business or self-employed experiences ever	Entrepreneur: degree-related or not
Alison	3	Entrepreneur	2	Degree-related
Brian	3	Entrepreneur	2	Degree-related
Christopher	3	Student	0	n/a
David	2	Entrepreneur	2	Not degree-related
Geraldine	2	Entrepreneur	1	Degree-related
Iain	2	Pursuing PhD study	0	n/a
Harry	1	Entrepreneur (franchisee)	1	Degree-related
John	1	Employed and entrepreneur	3	Not degree-related
Eliott	1	Employed	0	n/a
Finn	1	Employed	0	n/a

of the ten participants, including their original entrepreneurship score.

Findings

RQ 1: Did the original study predict outcomes accurately for participants?

Table 2 shows each participant's status with regard to entrepreneurship. Using four antecedents, measured by the questions listed in Table 1, it would appear prediction of entrepreneurship is not straightforward. Within this small sample of participants there are observable anomalies. At the higher scoring end, two of the participants who scored 3 were self-employed, but another was not. Similarly, those who scored low in the original study, in terms of likelihood to become an entrepreneur, did have representation of self-employment amongst them (Harry and John). The results for those who scored in the broad middle range seem to suggest a degree of variability. This does not necessarily mean that antecedents, nor indeed the measurement of them in the original study, do not have an effect on intentions for entrepreneurship. It does seem to suggest, however, that other factors also contribute: the interview data provided some insights.

For those who scored 3 and became entrepreneurs, information about their entrepreneurial journeys fits broadly with TPB. For example, Alison identified her mother as a role model, and Brian had started a business while at university. Geraldine, who scored 2 in the original study, also claimed family influence had an effect on her decision to start her firm. In contrast, David, who also scored 2, described a very different set of motivators:

'I felt I was not getting anywhere with a career, I decided to move on.'

He had other influences too:

'I am a strong character. But my father, who has never been supportive, is weak and an alcoholic, so I like to stand on my own two feet.'

David's experience suggests extra antecedents, environmental and psychological, to his behaviour and his drive for independence and entrepreneurship and they illustrate the highly idiosyncratic means by which entrepreneurship might be actualized. The fact that David did not run a firm that was related to his degree programme, and that he identified a lack of opportunity in employment, suggests an economic environment effect in addition. This was also the case for Harry, who scored 1 in the original study: he started a franchise in his specialism as a result of redundancy:

'The main motivation was circumstances ... I ran a tax team with [company name] and after the buy-out I was asked to go to London and I was unwilling to do this. When I couldn't find anything else, I investigated the franchise market ... The most significant factor has been to gain financial stability.'

Thus there is some indication that circumstances and the economic environment have had a greater effect on establishing entrepreneurial careers for David and Harry. Both had anticipated careers in employment and so entrepreneurship, for them, was not an intended, nor necessarily desirable, outcome. It was the one they ended up with, though. The extent to which their

entrepreneurship education might have facilitated this as an option is explored in the next section.

RQ 2: Did entrepreneurship education contribute to business creation or self-employment for participants?

As expected, those participants who had scores of 3 and had started firms were very positive about their university entrepreneurship education. Alison enthused thus:

'Being tutored about various aspects of running a successful creative enterprise and pitching your ideas to professors and industry experts helped...I won an award and received lots of practical advice...University experience allowed me time to develop my artistic voice and business idea...It enables students to understand the value of innovation, marketing and all, and gives confidence...Learning about the business plan was useful. It made me aware that the business plan is not a set of numbers but is a road map of where you want to take your business...It was of immense value.'

Similarly, Brian made a direct link between his studies and his business venturing, and noted in particular the opportunity afforded by a university business plan competition as a source of invaluable help. Geraldine also specified the value of the university entrepreneurship education for developing understanding and knowledge about how to internationalize business, subsequently enacted in her firm.

For the more reluctant entrepreneurs, David and Harry, similar acknowledgement of the contribution of entrepreneurship education to their firms was also given:

'It reflected the real world of business. The best thing I learnt was how to research a project, researching materials, pricing, and every day things in the business.' (David)

'I realize now there are things I didn't know, like basic things, what kind of company to set up, like sole trader, partnership and how to do bookkeeping.' (Harry)

Thus for all of these participants there is evidence that skills in starting and running a business were developed during entrepreneurship education. There is also a suggestion that entrepreneurship education extended entrepreneurship as a career option. For those whose scores were relatively low (David and Harry), this may

have been the difference between employment and un- or under-employment. Even Iain, who was pursuing further study and has no business creation experience, has not ruled out entrepreneurship at some point:

'I'll see what opportunities suit me. It could be anything including starting a company – with the right people – it's possible, probability about fifty per cent.'

For John, who scored just 1 in the original study, the option to start a firm appears to have been a major effect of entrepreneurship education and he seems to have embraced this particularly, despite also being employed. Currently on his third business venture, he noted that,

'Entrepreneurship [education] was useful, other subjects not so much. It taught me to study, to do lots of research...I enjoyed learning the reality of what really does happen in a business.'

John appeared to exhibit 'classic' entrepreneurship characteristics, despite having scored only 1 (attributed to family in business) in the original study. He appeared to be a serial venturer, expressing almost stereotypical entrepreneurial sentiments, despite having few measured antecedents to entrepreneurship. He explained it thus:

'I like to make money...I can spot where there's a need and I can create a business. I go to the best people I can find. I enjoy finding a niche market and exploiting it, making it successful.'

Despite this, John was also employed. At first sight this seems to suggest risk-aversion, or perhaps even a lack of commitment to entrepreneurship or faith in his abilities to succeed. On closer inspection, this was not the case: John is a fire-fighter, a vocation one cannot pursue as an independent business or as self-employed, and a job he had always wanted:

'I love it. I tried to join twice and failed, took time out, tried again and was successful.'

Thus, instead of employment suggesting a lack of entrepreneurial spirit, in John's case it reinforced many of the features of the archetypal, successful entrepreneur; risk, commitment and perseverance in particular. For the current research, the inference once again is that routes to entrepreneurship appear idiosyncratic. For John, there appeared to be some suggestion of overlap between the skills and behaviours attributed to entrepreneurship and employment.

Exploring 'successful' outcomes of entrepreneurship education

The extent to which entrepreneurship education had been perceived as useful outside the business creation and self-employed contexts is explored further in the next section.

RQ3: *Did entrepreneurship education contribute to careers and employment beyond business creation or self-employed contexts?*

The results for RQ3 were generally very positive. As discussed above, those who started firms or became self-employed claimed the entrepreneurship education they received at university had been valuable. For those who did not do these things, there is much to suggest that entrepreneurship education had nevertheless made a contribution to their lives. For Christopher, entrepreneurship education served to identify that self-employment and business ownership were *not* optimal career choices for him. While he scored relatively highly in the original study, he did not envisage ever starting a firm or being self-employed. Despite this, he stated the following with regard to entrepreneurship education:

‘Although I have not gone into this sector it has helped me work with friends to help them develop their own business plans.’

There is a suggestion also amongst those who were currently employed in graduate jobs that entrepreneurship had nevertheless made a contribution. Two of the low scorers, Elliot and Finn, claimed to have no interest in self-employment or business creation; despite this, they both also stated that entrepreneurship education had been valuable in their careers:

‘Entrepreneurship classes were good for practical things, like how to write and present a business plan, see the ‘big picture’ of a company, as you typically experience when working at big companies.’ (Elliot)

Discussion

Studies of entrepreneurship education have predicted and measured outcomes on the basis of numbers of graduates who are expected to become self-employed or business owners. In so doing, these studies assume entrepreneurship to be a positive choice, borne of opportunity realization amongst graduates. Using these assumptions about opportunity identification and business creation, theories of ambition and intent have been used to underpin empirical work seeking to predict the impacts of entrepreneurship education on individuals and on (local and national) economies.

These predictions then form the basis of justification of entrepreneurship education by inferring the potential and value of the predictions in the longer term.

The current study finds that rather than entrepreneurship outcomes equating neatly to intentional opportunity-based business venturing there is complexity and nuance amongst graduate experiences. As such, utilizing a somewhat binary approach through the application of TPB is questioned. In particular, the current study identified evidence of successful outcomes of entrepreneurship education in at least three contexts:

- (1) Entrepreneurship education was found to contribute to those who might start a business in order to realize perceived entrepreneurial opportunities: classic opportunity entrepreneurship in line with an individual’s ambitions and efficacy (as was the case with Alison, Brian and Geraldine). Entrepreneurship education can develop the necessary skills and abilities; it can also variously promote this type of entrepreneurial behaviour, including opportunity perception, exploitation, the value of innovation, and the exposure of business venturing as a career option.
- (2) The development of skills and abilities to start firms or pursue autonomous employment may also increase efficacy amongst those who have had little or no ambition for entrepreneurship. While self-employment for graduates in this category may not be an ideal outcome, the extent to which it is realized, and the development of abilities to engage fruitfully, must be regarded as an important contribution entrepreneurship education might make, as reported here for David and Harry.
- (3) For those who know or who, like Christopher, find out as a consequence of their education experience, that they do not wish to pursue a career in entrepreneurship, the evidence presented here implies that a contribution may still be made by entrepreneurship education. Again, skills and abilities developed by entrepreneurship education do appear to have enhanced the performance of individuals in employment, as suggested by Elliot and Finn.

We found that the value of entrepreneurship education was not reduced by these different contributions. In fact, the argument about the value of entrepreneurship education in terms of equipping students for work in the modern economy was reinforced. Our findings do however suggest that studies seeking to measure the effects of entrepreneurship education need to develop beyond the defining features of successful outcomes including only opportunity-based start-ups. The convenience of theories of intent, such as TPB, is

tempting in that such theories provide a framework within which to test the likelihood of entrepreneurial engagement amongst students. They cannot tell the whole story though, because the economic and employment environments are highly dynamic and the experiences and personalities of students (subsequently graduates) are highly idiosyncratic. Those who have not started a firm, but who have contributed to the entrepreneurial orientation of an existing organization by practising skills developed by entrepreneurship education, must be regarded as success stories. Similarly, and perhaps more pertinently from an educational perspective, those who have no ambitions for opportunity- and innovation-based start-up, but who find themselves self-employed contractors to an organization – or merely self-employed as a consequence of few alternatives being available – must also be considered as successes. The extent to which these individuals are able to operate, contribute and engage with these types of (self-) employment is likely to be a testament to the skills developed by entrepreneurship education. Evidence in the current study certainly points to this being a feature highly valued amongst recent graduates; for some, perhaps even the difference between career employment and unemployment. Rather than exclude these successes from the analysis, studies of entrepreneurship education might better inform pedagogy and policy and prepare students for the myriad possibilities available in the modern, competitive employment environment. Not only does this extend the justification of entrepreneurship education, it also represents a substantial extension of the celebration of it.

Conclusion

The present paper is limited in that it provides a follow-up account of only ten graduates who had experienced entrepreneurship education as part of their degree programme. As a consequence, our findings are not generalizable and it is possible that a study involving different participants, or in different regional or national contexts, might prompt different results. In addition, no-one in the current study had scored 4 or 0 in the original study – the two extreme ends of the measurement. It would be interesting to identify if consistency or anomaly is observable amongst them. It may be the case that those with a very high incidence of features often attributed to entrepreneurship are more likely to enact entrepreneurship, and those with a very low incidence of these features least likely, regardless of environmental conditions. Despite these, the lack of clear patterns of employment trajectory amongst this small mid-range scoring group does suggest a

complexity of outcomes and outcome potentials that previous work on the effects of entrepreneurship education has not fully addressed.

Like Green and Saridakis (2008), we consider that more research on the careers of those who have studied entrepreneurship would be of interest. Corroboration (or otherwise) with the present study using different samples of students and ex-students is needed. Echoing calls for greater methodological diversity in entrepreneurship research (Neergaard and Ulhøi, 2007), methods affording a depth of study of ambitions, intentions and employment outcomes of those who have studied entrepreneurship would add further to our understanding of the complexities and processes of entrepreneurial careers for individuals in dynamic environments. They may also provide better insight into the various ways entrepreneurship education influences, develops and informs graduates, as their lives unfold, their careers mature and the economic and employment landscapes evolve. We suggest the contribution being made by entrepreneurship education is rather greater than we currently measure. To explore this greater contribution we make the following three recommendations for future research.

First, there is a need to understand better the impact of entrepreneurship education more widely, including its utility to students and its eventual economic contribution in entrepreneurship and employment contexts. To this end we would argue that studies of entrepreneurship education should widen their measures of success to encompass contributions that include, but are not exclusively concerned with, new venturing. This requires that research includes some greater inspection of graduates' careers as experienced post-education.

Second, new venturing, as an outcome of entrepreneurship education, should receive closer inspection in terms of its alignment with graduates' ambitions. Assumptions that new venturing or self-employment is always a positive and intentional outcome should be challenged. Closer inspection is required to understand the quality of new venture experiences amongst graduates, the reasons for venturing and, of course, the contribution of entrepreneurship education to managing, or even inspiring, self-employment or new venturing to *mitigate* lack of reasonable, valuable alternative career options for graduates.

Finally, third, enterprising behaviour in careers in organizations should be given more scrutiny and methodologies should be developed that can explore the links between entrepreneurship education and entrepreneurial behaviour in organizations.

Within this research agenda we contend that the assumption that entrepreneurship is always intentional

Exploring 'successful' outcomes of entrepreneurship education

and agency-oriented is unsafe and requires challenge. Certainly this study found examples of business venturing where choice, efficacy and desirability as antecedents were not valid, and indeed entrepreneurship was in fact a negative outcome in the context of graduates' original ambitions.

The results from this study suggest that the contribution entrepreneurship education has made is greater than can be captured by restricting the analysis to include business venturing only, and must also include impacts within organizations. Furthermore, to inform development of entrepreneurship education pedagogy and practice, to make it as relevant to students as possible, research and practice must move beyond assuming agency and intention as the only drivers of entrepreneurship. Entrepreneurship education requires development of methods that will equip students to be able to react affirmatively, whatever the career environment. Therein students will be best served by entrepreneurship education and best equipped to contribute socially and economically throughout their careers.

Notes

¹We considered that while initial contact should be made, and outline information obtained, by a students' previous teacher, there was a greater likelihood of participants saying what teachers' wanted to hear when asked about the effects of their module(s). As a consequence, interviews were arranged by the former teacher, but were conducted by a researcher not known to the participant so they could be as candid as possible.

References

- Ajzen, I. (1991), 'The theory of planned behavior', *Organizational Behavior and Human Decision Processes*, Vol 50, No 2, pp 179–211.
- Arenius, P., and Kovalainen, A. (2006), 'Similarities and differences across the factors associated with women's self-employment preference in the Nordic countries', *International Small Business Journal*, Vol 24, No 1, pp 31–59.
- Avnimelech, G., and Feldman, M. (2010), 'The regional context of corporate spawning', presented at the *DRUID Summer Conference 2010: Opening Up of Innovation: Strategy, Organisation and Technology*, Imperial College, London, 16–18 July, see also www.druid.dk.
- Baldry, C., Bain, P., Taylor, P., Hyman, J., Scholarios, D., Marks, A., Watson, A., Gilbert, K., Gall, G., and Bunzel, D. (2007), *The Meaning of Work in the New Economy*, Palgrave Macmillan, London.
- Bechard, J.P., and Gregoire, D. (2005), 'Entrepreneurship education research revisited: the case of higher education', *Academy of Management Learning & Education*, Vol 4, No 1, pp 22–43.
- Bergvall-Kareborn, B., and Howcroft, D. (2011), 'Crowdsourcing and ICT work: a study of Apple and Google mobile application developers', <http://www.crowdsourcing.org/document/crowdsourcing-and-ict-work-a-study-of-apple-and-google-mobile-phone-application-developers/4274> (accessed 22 October 2015).
- Cassell, C., and Symon, C. (1994), 'Qualitative research in work contexts', in Cassell, C., and Symon, C., eds, *Qualitative Methods in Organizational Research: A Practical Guide*, Sage, London, pp 1–13.
- Chell, E., Haworth, J., and Brearley, S. (1991), *The Entrepreneurial Personality*, Routledge, London.
- Cooper, A.C. (1985), 'The role of incubator organizations in the founding of growth oriented firms', *Journal of Business Venturing*, Vol 1, pp 75–86.
- Díaz-García, M.-C., and Welter, F. (2013), 'Gender identities and practices: interpreting women entrepreneurs' narratives', *International Small Business Journal*, Vol 31, No 4, pp 384–404.
- Fayolle, A. (2013), 'Personal views on the future of entrepreneurship education', *Entrepreneurship and Regional Development*, Vol 25, No 7–8, pp 692–701.
- Fayolle, A., and Liñán, F. (2014), 'The future of research on entrepreneurial intentions', *Journal of Business Research*, Vol 67, No 5, pp 663–666.
- Galloway, L., and Kelly, S. (2009), 'Identifying entrepreneurial potential? An investigation of the identifiers and features of entrepreneurship', *International Review of Entrepreneurship*, Vol 7, No 4, pp 1–24.
- Galloway, L., Anderson, M., Brown, W., and Wilson, L. (2005), 'Enterprise skills for the economy', *Education and Training*, Vol 47, No 1, pp 7–17.
- Gorman, G., Hanlon, D., and King, W. (1997), 'Some research perspectives on entrepreneurship education, enterprise education and education for small business management: a ten-year literature review', *International Small Business Journal*, Vol 15, No 3, pp 56–77.
- Green, F.J., and Saridakis, G. (2008), 'The role of higher education skills and support in graduate self-employment', *Studies in Higher Education*, Vol 33, No 6, pp 653–672.
- Hamilton, E.E. (2006), 'Whose story is it anyway? Narrative accounts of the role of women in founding and establishing family businesses', *International Small Business Journal*, Vol 24, No 3, pp 253–271.
- Honig, B. (2004), 'Entrepreneurship education: toward a model of contingency-based business planning', *Academy of Management Learning and Education*, Vol 3, No 3, pp 258–273.
- Hui-Chen, C., Kuen-Hung, T., and Chen-Yi, P. (2014), 'The entrepreneurial process: an integrated model', *International Entrepreneurship and Management Journal*, Vol 10, No 4, pp 727–745.
- Johnson, D., Craig, J.B.L., and Hildebrand, R. (2006), 'Entrepreneurship education: towards a discipline-based framework', *Journal of Management Development*, Vol 25, No 1, pp 40–54.
- Kautonen, T., van Gelderen, M., and Tornikoski, E.T. (2011), 'Predicting entrepreneurial behaviour: a test of the theory of planned behaviour', *Applied Economics*, Vol 45, No 6, pp 697–707.
- Kirby, D.A. (2004), 'Entrepreneurship education: can business schools meet the challenge?', *Education and Training*, Vol 46, No 8/9, pp 510–519.
- Kolvereid, L., and Isaksen, E. (2006), 'New business start-up and subsequent entry into self-employment', *Journal of Business Venturing*, Vol 21, No 6, pp 866–885.
- Krueger, N.F. (2005), 'The cognitive psychology of entrepreneurship', in Acs, Z.J., and Audretsch, D.B., eds, *Handbook of Entrepreneurship Research*, Springer-Verlag, New York.
- Krueger, N.F., Reilly, M.D., and Carsrud, A.L. (2000), 'Competing models of entrepreneurial intentions', *Journal of Business Venturing*, Vol 15, No 5–6, pp 411–432.
- Lee, L., Wong, P.K., Foo, M.D., and Leung, A. (2011), 'Entrepreneurial intentions: the influence of organizational and individual factors', *Journal of Business Venturing*, Vol 26, No 1, pp 124–136.

- Linan, F., Nabi, G., and Krueger, N. (2013), 'British and Spanish entrepreneurial intentions: a comparative study', *revista de economía mundial*, Vol 33, pp 73–103.
- Littunen, H. (2000), 'Entrepreneurship and the characteristics of the entrepreneurial personality', *International Journal of Entrepreneurial Behaviour & Research*, Vol 6, No 6, pp 295–310.
- Marks, A., and Huzzard, T. (2010), 'Employability and the ICT worker: a study of employees in Scottish small businesses', *New Technology, Work and Employment*, Vol 25, No 2, pp 167–181.
- Miles, M., and Huberman, M. (1994), *Qualitative Data Analysis: An Expanded Sourcebook*, Sage, Thousand Oaks, CA.
- Mohannak, K. (2007), 'Innovation networks and capability building in the Australian high-technology SMEs', *European Journal of Innovation Management*, Vol 10, No 2, pp 236–251.
- Neck, H.M., and Greene, P.G. (2011), 'Entrepreneurship education: known worlds and new frontiers', *Journal of Small Business Management*, Vol 49, No 1, pp 55–70.
- Neergaard, H., and Ulhoi, J.P. (2007), *Handbook of Qualitative Research Methods in Entrepreneurship*, Edward Elgar, Cheltenham.
- Oosterbeek, H., van Praag, M., and Ijsselstein, A. (2010), 'The impact of entrepreneurship education on entrepreneurship skills and motivation', *European Economic Review*, Vol 54, No 3, pp 442–454.
- Patzelt, H., and Shepherd, D.A. (2011), 'Negative emotions of an entrepreneurial career: self-employment and regulatory coping behaviors', *Journal of Business Venturing*, Vol 26, No 2, pp 226–238.
- Pittaway, L., and Cope, J. (2007), 'Entrepreneurship education – a systematic review of the evidence', *International Small Business Journal*, Vol 25, No 5, pp 477–506.
- Rae, D. (2007), 'Connecting enterprise and graduate employability', *Education + Training*, Vol 49, No 8/9, pp 605–619.
- Rae, D., Martin, L., Antcliff, V., and Hannon, P. (2010), 'The 2010 survey of enterprise and entrepreneurship in higher education', paper presented at the 33rd ISBE Conference, London, http://ncee.org.uk/wp-content/uploads/2014/06/ISBE_Report.pdf (accessed 23 October 2015).
- Rideout, E., and Gray, D. (2013), 'Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education', *Journal of Small Business Management*, Vol 51, No 3, pp 329–351.
- Robert, F., Marques, P., Lasch, F., and Le Roy, F. (2009), 'Entrepreneurship in emerging high-tech industries: ICT entrepreneurs between experts and kamikazes', *International Journal of Entrepreneurship and Small Business*, Vol 7, No 3, pp 258–283.
- Rosa, P. (2003), "'Hardly likely to make the Japanese tremble": the business of recently graduated university and college entrepreneurs', *International Small Business Journal*, Vol 21, No 4, pp 435–459.
- Rubin, H.J., and Rubin, I.S. (2005), *Qualitative Interviewing: The Art of Hearing Data*, Sage, London.
- Salkind, N.J. (2009), *Exploring Research*, Pearson Education, New York.
- Segal, G., Borgia, D., and Schoenfeld, J. (2005), 'The motivation to become an entrepreneur', *International Journal of Entrepreneurial Behaviour & Research*, Vol 11, No 1, pp 42–57.
- Sewell, P., and Dacre Pool, L. (2010), 'Moving from conceptual ambiguity to operational clarity', *Education + Training*, Vol 52, No 1, pp 89–94.
- Stake, R.E. (1995), *The Art of Case Study Research*, Sage, London.
- Timmons, J.A., and Spinelli, S. (2007), *New Venture Creation: Entrepreneurship for the 21st Century*, McGraw-Hill, New York.
- van Gelderen, M., Thurik, R., and Bosman, N. (2005), 'Success and risk factors in the pre-startup phase', *Small Business Economics*, Vol 24, No 4, pp 365–380.
- Von Graevenitz, G., Harhoff, D., and Weber, R. (2010), 'The effects of entrepreneurship education', *Journal of Economic Behaviour and Organisation*, Vol 76, No 1, pp 90–112.
- Wiklund, J., Davidsson, P., and Delmar, F. (2003), 'What do they think and feel about growth? An expectancy–value approach to small business managers' attitudes toward growth', *Entrepreneurship Theory and Practice*, Vol 27, No 3, pp 247–270.
- Yin, R.K. (2003), *Case Study Research: Design and Methods*, Sage, Thousand Oaks, CA.